



University
of Basel

Department of
Biomedical Engineering



Seminar Series:

Latest Breakthroughs in Biomedical Engineering Research

Location: DBE Science Lounge, Hegenheimermattweg 167C, 4123 Allschwil

Date & Time: Thursday 15.10.2026 | 16:30 – 17:30

Host: Dr. Marco Barbieri

Combining medical imaging and biomedical data to model the human musculoskeletal system

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Abstract

Over the last decade, the development and use of Digital Twins for Healthcare (DTH) have increased enormously. The growing availability of data, particularly medical imaging data, has certainly contributed to this trend, making it possible to generate more anatomically accurate models. However, to date, developing a digital replica of the human musculoskeletal system remains challenging. For a digital twin to be physiologically plausible, it is not always just about the anatomy. In this talk, I will walk you through my journey towards the development of Digital Twins for Healthcare, highlighting some of the works my collaborators and I have carried out over the past few years.

Biosketch

Biomedical engineer by training, Giorgio completed his PhD in musculoskeletal biomechanics at Griffith University and continued his post-doctoral research at the University of Bologna in the InSilicoMedicine group led by Prof. Viceconti. His research focuses on the development of personalized musculoskeletal models and on the use of different approaches to model suboptimal or abnormal muscle control, which include EMG-assisted and stochastic approaches, to better understand and study neuromusculoskeletal conditions (such as cerebral palsy or age-related muscle disorders).